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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,755

12/04/2003

Seog-III Song

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8791 7590 01/10/2007
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EXAMINER

TU, JULIA P

ART UNIT

PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/729,755	Applicant(s) SONG ET AL.	
	Examiner Julia P. Tu	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☒ Claim(s) 6-8 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: the examiner suggests to change "the orthogonally encoded binary signals" in line 2, page 16 to "the orthogonally encoded serial binary signals." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites "after (b)" in line 3 and "after (d)" in line 6. Claim 7 recites "(e)" in line 2 and "(f)" in line 3, page 17. It is unclear what the claim invention is about.

Appropriate correction is required.

Claim 8 depends on itself. Appropriate correction is required.

Allowable Subject Matter

4. Claims 1-4 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: The present invention comprises a wireless communication system comprising: a transmitter including an orthogonal encoder for converting serially input binary signals

to parallel binary signals and orthogonally encoding the parallel binary signals, a first multiplier for multiplying the orthogonally encoded binary signals by an intrinsic spreading code to spread the orthogonally encoded binary signals, and an OFDM (Orthogonal Frequency Division Multiplexing) modulator for OFDM-modulating the spread signals; and a receiver including an OFDM demodulator for demodulating the OFDM-modulated signals, and a maximum likelihood detector for performing a maximum likelihood detection of the demodulated spread signals, the maximum likelihood detector grouping the OFDM-demodulated signals into a predetermined number of blocks to perform the maximum likelihood detection, and using the grouped maximum likelihood detection values to perform a whole maximum likelihood detection. The closest prior art, Schreiber et al. (US 5,425,050) disclose the similar system which include a transmitter including an orthogonal encoder for converting serially input binary signals to parallel binary signals and orthogonally encoding the parallel binary signals, a first multiplier for multiplying the orthogonally encoded binary signals by an intrinsic spreading code to spread the orthogonally encoded binary signals, and an OFDM (Orthogonal Frequency Division Multiplexing) modulator for OFDM-modulating the spread signals; and a receiver including an OFDM demodulator for demodulating the OFDM-modulated signals, and a maximum likelihood detector for performing a maximum likelihood detection of the demodulated spread signals (see figures 3 and 4). However, Schreiber et al. fail to teach the maximum likelihood detector grouping the OFDM-demodulated signals into a predetermined number of blocks to perform the maximum likelihood detection, and using the grouped maximum likelihood detection

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values to perform a whole maximum likelihood detection. The distinct features have been added to the independent claim 1, therefore, rendering them allowable.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schreiber et al. (US 5,425,050) disclose an OFDM modulator and demodulator system (see figures 1-4) using maximum likelihood detection (column 12, lines 20-21).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julia P. Tu whose telephone number is 571-270-1087. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.T.

01/05/2007

A handwritten signature in black ink, appearing to read "Chieh M-2".

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER